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Partnership Development in the Federal Government

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Preface

In March 2016, the Office of Science and Technology Policy (OSTP) requested that the IDA Science and Technology Policy Institute (STPI) describe a set of approaches to improve innovation in and the effectiveness of the Federal Government. The innovative approaches identified create new processes, products, services, and methods of delivery; have been implemented or are in the initial stages of implementation; and have led to improvements in outcomes, efficiency, effectiveness, or quality related to Federal Government activities.

The objective of this project was to describe the lessons learned from the implementation of innovative approaches and identify opportunities for how to support the scaling up of these approaches throughout the Federal Government. The *Partnership Development in the Federal Government* report describes general practices related to developing partnerships in the Federal Government with non-Federal stakeholders, including scoping, deploying, and establishing oversight of partnership activities.

Prior to its publication online in 2019, this report was an internal Federal resource for Federal Government employees. It was published online to help benefit Federal and non-Federal communities alike. Because this report was written 3 years prior to its 2019 online publication, some of the URLs referenced may no longer be valid.

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> *For dealing with the most complex problems, we must involve stakeholders from every critical point in the system. Solutions, the good ones, are multi-dimensional. Therefore, we must bring together the most valuable players, helping them to work collaboratively...using a framework that embraces their differing needs and unique perspectives."*

> — Seth Kahan, "The Power to Convene and Set Context"[1]

A. Overview

This report provides an overview for developing partnerships in the Federal government with non-Federal stakeholders, such as state and local governmental entities, academic institutions, industry, non-profit organizations, and philanthropic organizations. The information in this report is largely based on relevant literature, including articles from journals, news, and program documents, as well as interviews with program managers and others across the Federal Government. This report is intended to guide Federal Government employees as they consider how to develop and implement partnerships. For readers interested in learning more about the role, development, and impact of partnerships, case studies of government led partnerships can be found in Appendix A and additional resources in Appendix B.

B. Introduction

A partnership is one mechanism that can be used to achieve and act on goals and interests shared among multiple parties. There are a variety of partnership types, thus the definition and attributes of partnerships can vary. Generally, Federal partnerships can be understood to be formal or informal collaborative working relationships among multiple organizations within the Federal Government or with non-Federal entities or individuals. Partnerships can be designed to organize interested parties to address public problems. Regardless of the partnership type, stakeholders engaged in a partnership share responsibility—no single entity is fully in control.[2] The goals,

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[1]   S. Kahan, "The Power to Convene and Set Context," *Fast Company*, October 2008, https://www.fastcompany.com/1061235/power-convene-and-set-context.

[2]   J. Donahue, "Memo to the President: Getting Public-Private Partnership Right," Government Executive, January 13, 2017, http://www.govexec.com/excellence/promising-practices/2017/01/memo-president-getting-public-private-partnership-right/134587.

structure, and governance of the partnership, in addition to the roles and responsibilities of each partner, are mutually determined in accord with a shared outcome.

1. Why

The Federal Government is uniquely positioned to organize multiple stakeholders to advance progress on issues requiring change, adoption, or scale up. As a partner, the Federal Government can elevate an issue's national profile and galvanize efforts from interested stakeholders to take actions towards shared goals. Partnerships are a collaborative effort that require coordination between parties and can help shape the efforts of a Federal entity.[3]

Partnerships can also be deployed to access non-Federal resources that otherwise would be inaccessible to the Federal entity. For example, the Federal Government could better utilize human capital and build Federal capacity by tapping into expertise in the private and non-profit sectors. This can be valuable if agencies experience a challenge in which specialized knowledge is required. Examples of other potential benefits of partnerships include: (1) improvements to time and budgets for project delivery leading to cost savings,[4] and (2) allocation of risks to non-governmental entities.[5] Finally, non-Federal organizations involved in partnerships can gain familiarity with the purpose and benefits of Federal programs, and, therefore, may be more effective advocates for such programs.

2. How

Partnerships can encourage cooperation and collaboration through a variety of mechanisms. Partnerships can be informal—examples include convening open conversations about objectives or creating a space for transparent discussion—or formal—including those governed by contractual agreements. Non-Federal organizations can play an essential role supporting the implementation of commitments and execution of programs, complementing the role that the Federal agencies can play as conveners.

In order to develop a partnership, agencies may need to develop new policies, which can sometimes require capacity-building in legal, technical, financial, or managerial areas. In determining whether to utilize more formalized partnerships, agencies should consider organizational conflicts of interests by identifying any existing connections (e.g., grants, contracts, enforcement actions, etc.) before engaging with potential partners.

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[3] A. Chopra, *Innovative State,* Grove/Atlantic, Inc., 2016, p. 134.

[4] PricewaterhouseCoopers, "Public-Private Partnerships in the US: The State of the Market and the Road Ahead," November 2016, http://www.pwc.com/us/en/capital-projects-infrastructure/publications/assets/pwc-us-public-private-partnerships.pdf.

[5] National Council for Public-Private Partnerships, "For the Good of the People: Using Public-Private Partnerships to Meet America's Essential Needs," 2013, http://www.ncppp.org/wp-content/uploads/2013/03/WPFortheGoodofthePeople.pdf

C. Background

Many models can be considered in developing a partnership. This report generally categorizes these models as informal and formal, although the exact nature of the model (including the mechanisms and mediums used) may vary widely based on the Federal entity or sector. Both informal and formal partnerships have been widely used to implement projects across various sectors. Based on this history, a wide array of literature has been written to investigate the benefits and challenges of the formal partnership models for public sector entities.[6]

The concept of partnerships has an enduring history as a tool for augmenting Federal initiatives, programs, and policies. Traditionally and historically, infrastructure partnerships have been a common type of formal partnership dating back to the beginning of road construction in the United States, as people began expanding westward and trade grew.[7] (See Example 1: Federal Infrastructure Partnerships.) At the Federal level, a variety of informal partnerships have been developed. Examples include partnerships to drive new research tools in support of neuroscience research (BRAIN Initiative), to develop software and cloud computing (US Ignite), and to improve cardiovascular health by developing methods to prevent cardiovascular events (Million Hearts), among others. Further information on these and other partnerships can be found in Appendix A.

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[6] A few examples of recent studies include: E. Iossa and D. Martimort, "The Simple Microeconomics of Public-Private Partnerships," *Journal of Public Economic Theory* 17, no. 1 (2015): 4-48; J. Roehrich, M. Lewis, and G. George, "Are Public-Private Partnerships a Healthy Option? A Systematic Literature Review," *Social Science & Medicine* 113 (2014): 110-119; L.C. Gilroy et al., "Building New Roads through Public-Private Partnerships: Frequently Asked Questions," *Reason Foundation Policy Brief* No. 58, 2007.

[7] U.S. Department of Transportation, Federal Highway Administration, "Report to Congress on Public-Private Partnerships," December 2004, https://www.fhwa.dot.gov/reports/pppdec2004/pppdec2004.pdf.

Example 1: Federal Infrastructure Partnerships

In the late 1980s, states began to explore the potential of the private sector to augment state highway construction programs and to expedite projects. Since then, Federal and state governments have increasingly sought to leverage private sector resources to design, develop, build, and maintain roads, rails, airports, and related structures.[a]

Legislative actions at both the Federal and state level have laid groundwork to facilitate and promote infrastructure partnerships. An estimated 34 states have adopted laws to better enable the use of partnerships and attract long-term investments.[b] At the Federal level, the Fixing America's Surface Transportation (FAST) Act became law in 2015 and supports the creation and operation of public-private partnership (P3) offices for states to "assist in the design, implementation and oversight of P3s."

Infrastructure partnerships have been steadily expanding beyond the traditional focus of surface transportation to include water and wastewater, schools, hospitals, and broadband networks, enhancing the Federal Government's ability to tackle a wide range of challenges with non-Federal partners. Through P3s, the Department of Transportation (DOT) facilitated hundreds of partnerships to engineer waterways, revitalize roads, and construct new airports.

[a] U.S. Department of Transportation, Federal Highway Administration, "Report to Congress on Public-Private Partnerships," December 2004, https://www.fhwa.dot.gov/reports/pppdec2004/pppdec2004.pdf.

[b] C. B. Casady and R. R. Geddes, "Private Participation in US Infrastructure: The Role of PPP Units," American Enterprise Institute, October 26, 2016, https://www.aei.org/publication/private-participation-in-us-infrastructure-the-role-of-ppp-units/.

[c] U.S. Department of Transportation, Federal Highway Administration, "Project Profiles," https://www.fhwa.dot.gov/ipd/p3/project_profiles; PricewaterhouseCoopers, "Public-Private Partnerships in the US."

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1. Informal Partnerships

The Federal Government has a unique ability to act as an "impatient convener," in which the government requests multiple stakeholders to engage on issues and elevate an issue's national profile.[8] Commitment-generating devices, such as a convening, can spur an "all hands on deck" approach to catalyze advancements on mutually shared efforts.

In an informal partnership, non-Federal organizations can organically build coalitions to make financial and in-kind commitments that are aligned with achieving the initiative's goals. A variety of Federal and state entities have successfully convened informal partnerships to bring a variety of stakeholders together and advance their missions. For example, the Million Hearts initiative brought together nearly 120 organizations to coordinate between public health organizations and clinical systems to improve the nation's cardiovascular health by preventing cardiovascular events (see Appendix A for a case study on Million Hearts.).

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[8] A. Chopra, *Innovative State,* Grove/Atlantic, Inc., 2016, p. 88.

Table 1 provides an overview of leadership models that can be used in informal partnerships. Through high-level engagement, Federal officials can align executive action with specific commitments offered by the private and other sectors.

Table 1. Comparison of Partnerships against Other Leadership Models

	Top-Down Model	Bottom-Up Model	Hybrid Partnership Model
Who	• Senior administrator(s) drive policy decisions • Designated specialists contribute to and conduct work	• Representatives of a cross-stakeholder group have influence in guiding actions and decision-making • Dynamic leader(s) convene(s) group	• Groups with authority over the issue join with groups that have influence in the field • Persons with expertise and/or experience share knowledge and skills • Representatives of diverse stakeholder groups engage through consensus to identify issues, solve problems, and take action
Why	• Responsibility resides with a leader, who is the prominent authority for decisions • Leader driven; autocratic or small core group of people	• Buy-in across groups is desired • Responsibility resides with all • Grassroots investment engages participants and empowers action • Broad commitment to implementation • Sustainable after current leaders have moved on	• Decision-makers, practitioners, and consumers understand that collective influence has the potential to change outcomes • Stakeholders with authority and influence have a role and their interactions produce value • Building relationships across roles and levels broadens the area of impact and supports sustainability

Source: Modified from IDEA Partnership, "Leading by Convening," 2014, http://www.ideapartnership.org/documents/NovUploads/Blueprint%20USB/NASDSE%20Leading%20by%20Convening%20Book.pdf.

2. Formal Partnerships

A formal partnership can be developed between Federal and non-Federal partners through formalized agreements. Within the Federal Government, a number of agencies have established offices or programs committed to promoting and expanding formal partnerships. Examples include:

- The Department of Homeland Security (DHS) Science and Technology (S&T) Office of Public-Private Partnerships[9]

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[9] Department of Homeland Security, "Office of Public-Private Partnerships," accessed October 11, 2017, https://www.dhs.gov/science-and-technology/office-public-private-partnerships.

- The National Aeronautics and Space Administration (NASA) Partnerships Office within the Mission Support Directorate[10]

- The Center for Innovative Finance Support at DOT Federal Highway Administration (FHWA)[11]

- The Secretary's Office of Global Partnerships at the Department of State (DoS)[12]

- The Private Sector Division's initiative to promote P3s in emergency management at the Federal Emergency Management Agency (FEMA).[13]

Federal entities have developed internal guidance documents to utilize formal partnerships and meet statutory requirements. For example, NASA is congressionally mandated to work with industry to advance the commercial space sector.[14] To achieve this, NASA directorates, such as the Space Technology Mission Directorate (STMD), established contractual partnerships with U.S.-based companies to promote research and development of technologies that are of interest to NASA missions.[15] Partnerships receive high level support from senior leadership—for example, the NASA Partnership Council brings together senior leadership at Centers, Directorates, and Headquarters to help partnerships align with internal and external policies (See Example 2: Partnerships at NASA).

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[10] NASA, "NASA Partnerships Guide," December 21, 2016, https://nodis3.gsfc.nasa.gov/NPD_attachments/N_AII_1050_0003.pdf.

[11] Federal Highway Administration, "Innovation. Tools. Financing," accessed October 11, 2017, https://www.fhwa.dot.gov/ipd.

[12] Department of State, "The Secretary's Office of Global Partnerships," accessed October 11, 2017, https://www.state.gov/s/partnerships.

[13] Federal Emergency Management Agency, "Public-Private Partnerships," last modified December 22, 2015, https://www.fema.gov/public-private-partnerships.

[14] The National Aeronautics and Space Act, 51 USC § 20112.

[15] National Aeronautics and Space Administration, "NASA Establishes New Public-Private Partnerships to Advance U.S. Commercial Space Capabilities," February 22, 2017, https://www.nasa.gov/press-release/nasa-establishes-new-public-private-partnerships-to-advance-us-commercial-space.

Example 2: Partnerships at NASA

NASA's Partnership Council (PC) provides high level guidance for the establishment and management of partnerships, especially when a significant degree of integration across the agency is necessary or the partnership is highly visible. The PC has two main purposes. First, it ensures partnerships are aligned with "internal and external guidance and policy," and it is given authority "to adjudicate partnership issues that cannot be resolved at lower levels."[a] Second, the PC recommends improvements on partnerships approval processes.

Given the multi-disciplinary scope of many partnerships, NASA provides cross-cutting support to its program managers through various offices at Headquarters. For example, the Office of Communications supports engaging the public and stakeholders in partnerships; and the Office of the General Council issues legal guidance to ensure that agreements are in compliance with applicable laws, regulations, and agency policies. At NASA Centers and facilities, Partnership Offices and other entities (e.g., Offices of the Chief Council, Chief Financial Officer, Education, Safety Mission and Assurance and others) provide day to day support and resources to Federal employees developing and participating in partnerships.

[a] NASA, "Partnership Council Charter," July 9, 2015, https://nodis3.gsfc.nasa.gov/OPD_docs/NC_1000_33_.pdf.

A formalized partnership can take many forms. For example, a variant of P3s, referred to as public-philanthropic partnerships, has become increasingly common over the last few decades as Federal agencies have sought to pursue joint ventures with the private sector and philanthropies on issues such as health, safety, and welfare.[16] An additional variant, commonly called a people-public-private partnership (P4), employs bottom-up strategies to increase the participation of the public as a key stakeholder to foster public support.[17] A P4 model can incorporate both informal partnerships with public entities (e.g., professional groups, interest groups, and other stakeholders) and more formalized partnerships with non-Federal, often private, entities.

Public actors ("general public" in Figure 7) can be actively engaged in a P4 throughout the project's development and implementation. Researchers from the University of Hong Kong suggest that "the goal of the public engagement exercise is to provide fair, transparent and accountable process that engages the public in decision-making and facilitates information exchange as is concerned by most of the consulted experts."[18] Figure 7 shows a notional ecosystem of the partners involved in P4s, and Example 3: Rocky Flats Plant Nuclear Site Clean-Up provides a case study for this model.

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[16] A. Ardito, "Draft Report—Public Private Partnerships," Administrative Conference of the United States, September 7, 2016.

[17] S.T. Ng, J.M.W. Wong, and K.K.W. Wong, "A public private people partnerships (P4) process framework for infrastructure development in Hong Kong," *Cities* 31 (2013): 370-381.

[18] Ibid.
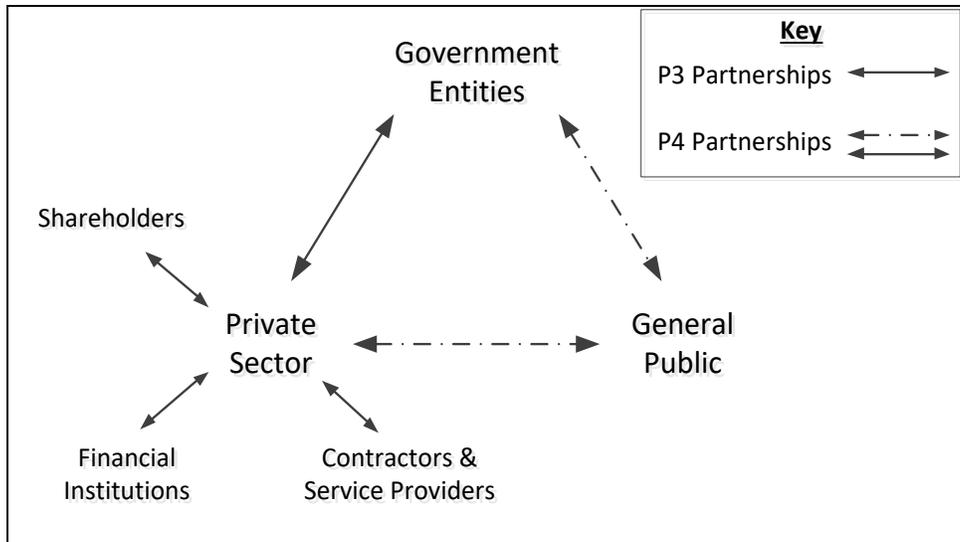
Adapted from: S.T. Ng, J.M.W. Wong, and K.K.W Wong, "A public private people partnerships (P4) process framework for infrastructure development in Hong Kong," *Cities* 31 (2013): 370-381.

Figure 1. People-Public-Private Partnership Model

Example 3. Rocky Flats Plant Nuclear Site Clean-Up

The Rocky Flats Plant in Golden, Colorado was a nuclear weapons production plant from 1952 to 1989. Resulting from various accidents, spills, fires and day to day operations, plutonium and other chemicals were released over the nearly 40 years of operation.[a]

In 1992, cleanup of the contamination began through a P3 between the Kaiser-Hill Co and Department of Energy (DOE). The public was engaged in the clean-up process through the Rocky Flats Citizens Advisory Board, an entity composed of academics, local governments, businesses, public interest groups, and other community members. Throughout the clean-up effort the Board, funded by the DOE, provided 117 recommendations to the regulatory agencies overseeing Kaiser-Hill's clean-up operations. Additionally the Board served as a conduit for public outreach and education, hosting community workshops, meetings and newsletters.[b]

After a decade of activity, Kaiser-Hill removed more than 21 tons of nuclear materials, disposed of over 600,000 cubic meters of radioactive waste and demolished over 800 facilities. The project was completed a year ahead of schedule and $500 million under budget.[c] Today, the site is managed as a National Wildlife Refuge by the U.S. Fish and Wildlife Service.

[a] State of Colorado, "What is the History of Rocky Flats," accessed January 3, 2018, https://www.colorado.gov/pacific/sites/default/files/HM_sf-rocky-flats-exposures-study-history-of-site.pdf.

[b] Rocky Flats Stewardship Council, "Rocky Flats Citizens Advisory Board," accessed January 3, 2018, http://rockyflatssc.org/rfcab_advisory_board.html.

[c] The Intersector Project, "Rocky Flats Colorado—The Result," accessed January 3, 2018, http://intersector.com/case/rockyflats_colorado.

D. Considerations for Use

Federal employees could consider some questions, adapted below from the DOT's FHWA, when determining if a partnership is a relevant mechanism to meet their strategic goals:[19]

- What is the context for the partnership; how does it relate to the agencies' goals?

- What authorities do Federal entities have to engage in a partnership? (e.g., do authorities exist to engage in formal partnerships? Are there statutory or regulatory limitations or guidelines to help aid in the process?)

- What are the risks, responsibilities, and returns that potential partners could expect from developing a partnership?

- Does the Federal entity initiating the partnership have the capabilities and resources to manage the partnership? (e.g., staffing levels both internal and external, organizational placement, structure and culture)

- For more formal partnerships, what procurement approaches are available; are they adaptable to a partnership model?

Once a Federal entity has determined its needs, it may consider how the composition, structure, and other attributes of the partnership should be configured. Figure 8 shows a conceptual overview of four partnership attributes—funding, topical reach, scope of need, and level of participation— and the associated spectrum of activities that could be considered when developing a partnership.

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[19] U.S. Department of Transportation, "User Guidebook on Implementing Public-Private Partnerships for Transportation Infrastructure Projects in the United States," July 7, 2007, https://www.fhwa.dot.gov/ipd/pdfs/ppp_user_guidebook_final_7-7-07.pdf.
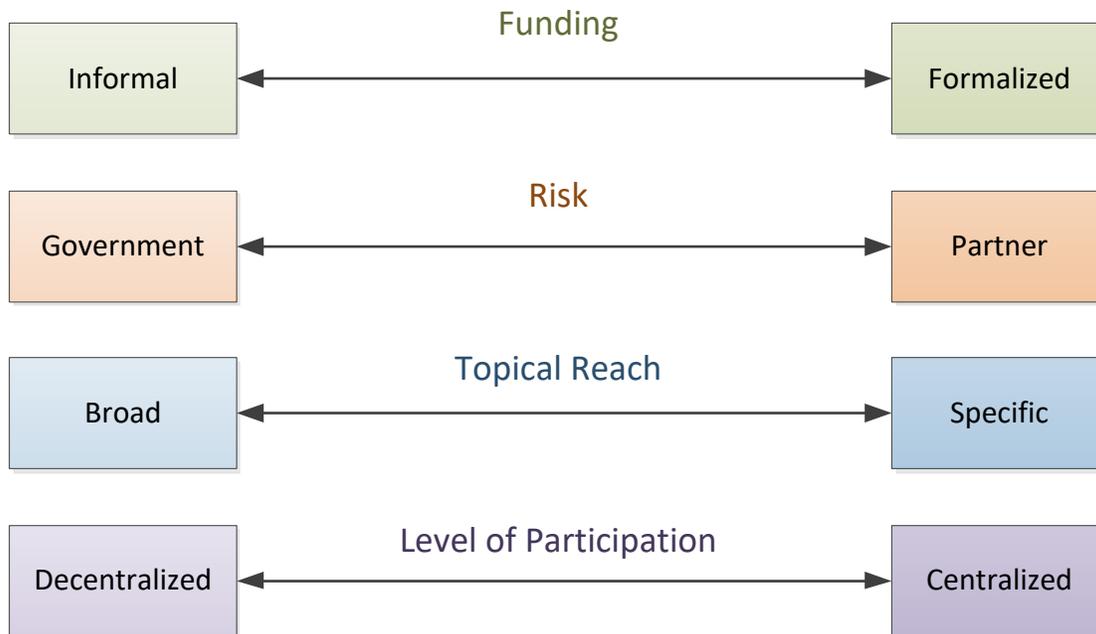
Figure 2. Spectrum of Engagement Select Attributes of a Partnership

1.   Funding

External collaboration through partnerships does not replace the normal processes of government and the primacy of legislative or programmatic efforts. However, partnerships can enable policymakers to focus on opportunities where external funding and other resources can be leveraged. To ensure that a partnership is adequately funded, collaborators can secure financial and personnel resources from a range of formal to informal methods. The amount of cross-sector resources galvanized can be one measure of success for a partnership.

An informally funded partnership may rely on in-kind support, gifts, and contributions of other non-monetary resources, such as expertise and time, from its collaborators. Although no contract may be signed in this scenario, responsibilities may be agreed upon in advance in the absence of financial incentives (e.g., through a memorandum of understanding or other agreements). For example, the DOE Oak Ridge National Laboratory (ORNL) Manufacturing Demonstration Facility is structured like a research consortia in which ORNL researchers collaborate directly with researchers from other sectors, including private companies, and train facility users. Private partners can commit resources to use the facility, via a facility usage charge, and may establish formal legally-binding collaboration agreements, like Cooperative Research and Development Agreements (CRADAs), with ORNL. In one collaboration, ORNL and Cincinnati Inc., a tool manufacturing company founded in the 1890s, built the Big Area Additive Manufacturing

machine, which has been used to 3-D print automobiles, a house, a mold for wind turbine blades, and an industrial excavator (Figure 9).[20]

STICK

The 7-foot-long, 400 lb stick was printed entirely of low cost steel on the Wolf Robotics Wolf Pack printer in only 5 days. This is the first application of large-scale metals additive manufacturing at ORNL.

CAB

Using the Cincinnati Incorporated Big Area Additive Manufacturing system, the cab was printed in only 5 hours with carbon fiber reinforced ABS plastic.

HEAT EXCHANGER

The 13 lb aluminum heat exchanger was 3D printed entirely on the Concept Laser X-line 1000 powder bed machine.

Source: ORNL, "Project AME," http://web.ornl.gov/sci/manufacturing/projectame/.

Figure 3. Industrial Excavator 3-D Printed at the ORNL Manufacturing Demonstration Facility.

On the other extreme of the spectrum, Federal agencies may use a formalized process, such as a contractual agreement, to transfer financial, capital, or personnel resources. For example, US Ignite, a nonprofit organization that creates demonstration projects to illustrate the public benefit of new technologies, designs commitments with private sector partners with clearly defined value propositions (as opposed to a framing for public sector stakeholders). P3s are formalized with clear, specific, and measurable goals and deliverables to help sustain longer-term buy-in into the partnership (See Appendix A for a case study U.S. Ignite.).

In addition, multi-sector partnerships can also take the form of joint-funding e.g., for research solicitations. For example, in 2016, the National Science Foundation and the Semiconductor Research Corporation announced a collaborative research program—Energy-Efficient Computing: from Devices to Architectures—to jointly-solicit proposals focused on "research to minimize the energy impacts of processing, storing, and moving data within future computing

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[20] ORNL, "New large-area, multi-material 3D printer to advance research," June 23, 2017, https://www.ornl.gov/content/new-large-area-multi-material-3d-printer-advance-research.

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systems.[21] Although funding goes to proposals from university researchers, the proposals are jointly reviewed and awardees selected via a joint working group composed of program officers from the National Science Foundation and the Semiconductor Research Corporation.

2.   Risk

Partnerships can provide an advantage to the Federal Government by transferring risks associated with accomplishing a goal (such as implementation of a Federal program or provision of a service) to relevant partners. However, depending on how the partnership is structured and the level of dependency of the Federal Government on partners' commitments, the government's risks can also increase. Partnerships often require additional resources, whether it be experts or funding to govern and execute the partnership in an effective manner. Risks can include financial risks—for instance partners can minimize the government's risks by committing their resources to help share the financial burden of accomplishing a goal; however, they can also increase the Federal Government's risks if those commitments are not ultimately fulfilled. Risks can also include reputational risk—for example, partnerships can positively impact the partners' and government's reputations if successful; however, reputation and credibility can easily be diminished due to delays, conflicts of interest, and or other damaging situations occurring throughout the partnership. Reputational risks can also include, for instance, negative press related to partner organizations; which negatively impacts the Federal stakeholders by association with their partners. The Federal Government may face additional risks due to loss of autonomy if the decision-making process is shared among partners.

Depending on the purpose of the partnership, Federal employees may seek to develop an appropriate risk transfer and management strategy to anticipate and mitigate risks to their agencies. Risks could be mitigated through legal or other contractual provisions (e.g., setting performance standards and outlining corrective actions or other guarantees).

3.   Topical Reach

When developing an action plan, coordinating entities can scope the topical reach of the desired partnership. Subjects can range from broad (e.g., eradication of all infectious diseases through any available method) to more specific (e.g., eradication of a specific disease via a specified means). By establishing the scope of the subject matter that will be covered with the partnership, goals and specific partners can be clearly identified. Goals can be set to be lofty and broad, indicating a high need for activity; alternatively goals can be scoped to be specific, to limit and focus activity.

Establishing a broad topical scope encourages input from a broad array of collaborators, which may incorporate a multi-disciplinary and geographically diverse set of partners. For example, the BRAIN Initiative was designed to cross traditional neuroscience boundaries through

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[21]   National Science Foundation, "Energy-Efficient Computing: from Devices to Architectures," https://www.nsf.gov/pubs/2016/nsf16526/nsf16526.htm.

interdisciplinary collaborations across fields such as computer science, physics, biology, engineering and chemistry. Through a broad topical reach, the initiative used an interdisciplinary approach to develop new research tools to close existing knowledge gaps about the brain and nervous system (see Appendix A for a case study on the BRAIN Initiative.).

Grand challenges are one example of partnerships where broad and lofty goals are set by collaborators. Goals are of national or international importance and intentionally set to be difficult to achieve; thus the level of progress made towards these goals is closely evaluated. For example, the Human Genome Project, an international scientific project, developed a large-scale team approach that required nearly $5.6 billion in public funding and over a decade of research to reach the aspirational goal of sequencing the entire human DNA; the successful project led to an estimated $800 billion in economic (output) impacts.[22]

On the other extreme, the topical reach of a partnership can be precise and focused. In these partnerships a specific expertise for a given topic may be desired, and partners with that expertise are sought to participate. For example, NASA's STMD in 2016 funded partnerships through "Tipping Point" solicitations to fund technologies with high potential for maturation and eventual commercialization. Two technology areas were identified by NASA (i.e., small launch vehicles and small spacecraft), and only proposals received on these topics were considered.[23] The partnerships were used to advance the specified technologies considered to be important for future commercial and government space missions.

A specific and achievable goal may be promoted by collaborators to encourage near-term solutions. For example, Federal agencies use prizes or challenges to engage external innovators when a problem is well-defined.[24] Examples include the Office of the Director of National Intelligence's prize to "uncover machine-based capabilities to review intelligence products against existing tradecraft standards"; prizes can identify near-term solutions to pressing needs within an agency.[25]

4. Level of Participation

Federal partnerships provide a powerful appeal for stakeholders to participate in efforts that advance public issues and provide societal benefits, particularly when potential partners have the opportunity to publicize their engagement alongside Federal senior leaders. When the goal is much

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[22] S. Tripp and M. Grueber, "Economic Impact of the Human Genome Project," Battelle Memorial Institute, May 2011, https://www.battelle.org/docs/default-source/misc/battelle-2011-misc-economic-impact-human-genome-project.pdf. Figures based on the value of a dollar in 2010.

[23] NASA, "Public-Private Partnerships: Tipping Point Solicitations and Awards," updated on November 9, 2017, https://www.nasa.gov/directorates/spacetech/solicitations/tipping_points.

[24] A list of challenges run by over 100 Federal agencies can be accessed at U.S. General Services Administration, "Challenges," https://www.challenge.gov/list.

[25] Innocentive, "The ODNI-OUSD(I) Xtend Challenge: Machine Evaluation of Analytic Products," https://www.innocentive.com/ar/challenge/9934078.

bigger than any one person or organization could possibly achieve, collaborators are drawn by the promise of accomplishing "something big" together. By understanding the needs and motivations of their collaborators, a Federal entity can shape a partnership to inspire engagement. Participation in partnerships can be structured along a spectrum from decentralized to centralized.

A decentralized approach encourages and facilitates the participation of all potential stakeholders, and potentially the general public, such as through crowd-sourcing initiatives. One example is NASA's Center of Excellence for Collaborative Innovation's (CoECI) crowd based challenges. Challenges are developed to describe an agency's specific need, and solutions are solicited from the general public (e.g., algorithm or software development).[26] Examples of four different technology mediums that NASA uses to engage internal (NASA@Work) and external (NASA Open Innovation Service (NOIS) Contracts) expertise is shown in Figure 10. Additional methods can be used to increase transparency, including the hosting of public meetings and providing open source data or code for external input.[27]
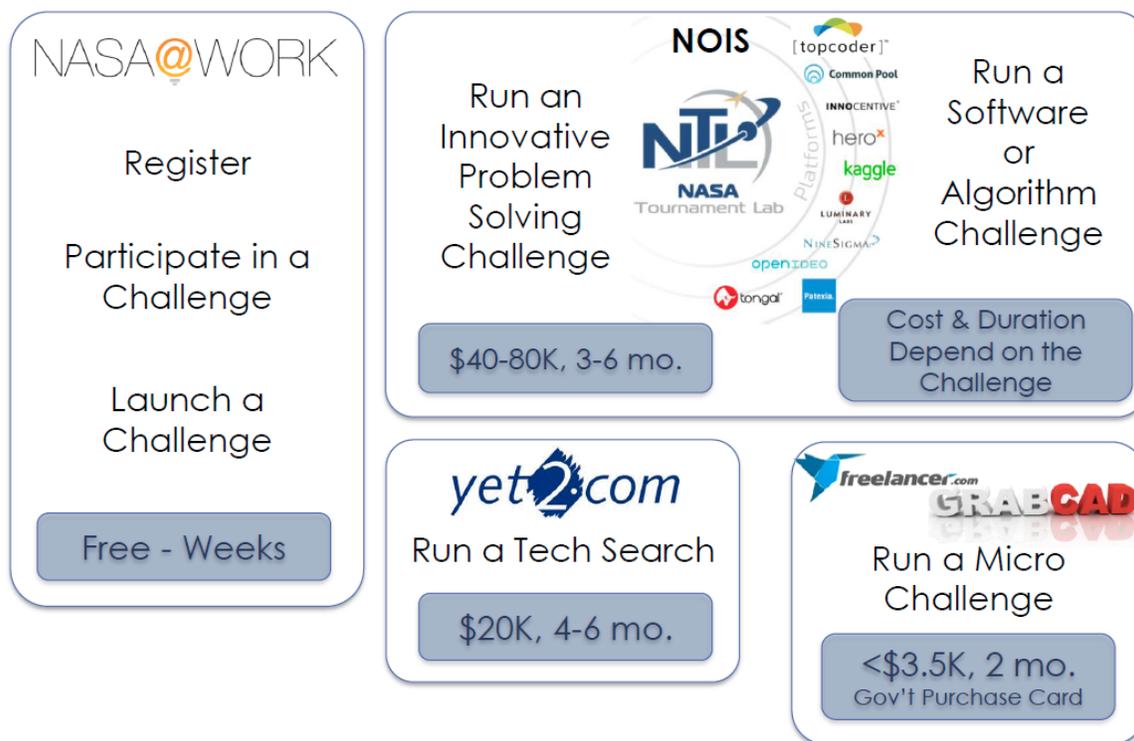
Source: Steve Rader, "The Power of Crowd Based Challenges," *NASA*, May 2017, http://www.cest.poli.usp.br/wp-content/uploads/2017/05/lecture4_steven.pdf.

Figure 4. NASA's Open Source Platforms

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[26] Steve Rader, "The Power of Crowd Based Challenges," *NASA*, May 2017, http://www.cest.poli.usp.br/wp-content/uploads/2017/05/lecture4_steven.pdf.

[27] U.S. General Services Administration, "Open-Source," accessed November 1, 2017, https://www.data.gov/developers/open-source.

Alternatively, a centralized approach focuses activity, funding, personnel, and execution of activities to one or a few prime partners. Engagement in this structure intentionally limits the number of collaborators within the partnership. P3s used by the DOT for infrastructure projects are one example of a centralized approach (see "Example 1: Federal Infrastructure Partnerships" for more information on these partnerships).

E. Implementation Guidelines

Elements to developing partnerships include scoping—for instance, evaluating suitability of partnership type, selection of partners, and objectives; deployment—for example, communication and funding; and oversight—including monitoring and performance management.

1. Scoping

A series of four considerations are presented to guide Federal entities through the scoping process.

a. Evaluation of suitability for formal and informal partnerships

Identifying the types of partnerships that are possible for a given project early in the planning process allows agencies to consider how the model may fit into long-term performance objectives and fiscal constraints. Agencies may additionally benefit by building the capacity of expert personnel or bring in outside support early on in a project's development to determine the types of partnerships that can benefit the initiative. Non-Federal partners and stakeholders can provide valuable insight into the types of potential partnerships that would be feasible.

Evaluating the feasibility of a formal partnership, for example, can be done by estimating the potential life-cycle costs of the project, the value of long-term revenue streams or other benefits, and the value of transferring specific risks to the private or other sectors. Depending on how the partnership is structured, different levels of costs may be involved. A value for money analysis allows Federal agencies to compare the public cost of a P3 to traditional project delivery or procurement options.[28] Regardless of method employed, an evaluation can help Federal entities understand and manage the potential financial risks across the entire life-cycle of the project.

b. Identification and selection of partners

With an identified partnership model, collaborators with a mutual interest should be identified. To build a coalition of partners, stakeholders can be brought in early and often during the development of the project to identify issues and address concerns.[29] For example, DOT brought in

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[28] National Council for Public-Private Partnerships, "Testing Tradition: Assessing the Added Value of Public-Private Partnerships," 2012, http://www.ncppp.org/wp-content/uploads/2013/03/WhitePaper2012-FinalWeb.pdf.

[29] Bipartisan Policy Institute, "Case Studies: Infrastructure Public-Private Partnerships," October 2016, https://cdn.bipartisanpolicy.org/wp-content/uploads/2016/10/BPC-Infrastructure-Case-Studies.pdf.

transportation planners, project engineers, and financial analysts to evaluate potential projects being considered as P3s.

In addition, when selecting a partner, agencies can assess the organization's expertise or experience with related issues, the partner's financial capacity, and their goals and objectives for participating in the partnership. Federal agencies seeking to engage private sector partners can conduct due diligence and vet potential partners to identify and mitigate any potential conflicts of interest.[30] Additionally, information gathered during due diligence and vetting can be informative as Federal agencies communicate the potential value and incentives for partners. This information can be helpful when selecting the "best value" partner (not always the lowest price) for the project.[31]

c. Definition of common issues and objectives

As a collaborative effort among partners, a set of needs and objectives can be identified to guide the scope of a given project or initiative. An agency may start by identifying a need, then defining the solution to meet that need.[32] Appropriate scoping and framing of the issue can lead to clearly defined roles and responsibilities for each partner and improve management of expectations as the project progresses. Agencies may wish to consider revisiting goals and objectives each time a new potential partner organization is approached by any member of the central partnership, especially to incorporate their ideas.

Engagement is a continual process throughout a partnership. To ensure active participation of partners, structured commitments can be mutually developed. Once the partnership structure has been identified, a detailed strategy plan can be developed to articulate and provide a medium for agreement on the rules of engagement that will govern the partnership. A repeatable and consistent process provides structure for the engagement and can ensure each partner implements adequate policies and procedures with respect to delivering and completing the project. Additionally, a documented process can create transparency and accountability in the partnership.

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[30] Centers for Disease Control, "CDC's Guiding Principles for Public-Private Partnerships: A Tool to Support Engagement to Achieve Public Health Goals," April 2014, https://www.cdc.gov/about/pdf/business/partnershipguidance-4-16-14.pdf.

[31] National Council for Public-Private Partnerships, "7 Keys to Success," http://www.ncppp.org/ppp-basics/7-keys/.

[32] Deloitte, "Partnering for Value: Structuring Effective Public-Private Partnerships for Infrastructure," 2010, https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Public-Sector/dttl-ps-partnering-value-08082013.pdf.

The following are a few practices for developing strategic commitments:

- **Select the problem by clearly defining concrete pieces of high-priority challenges**. Federal employees can use backcasting, or backwards mapping, to identify and segment dimensions of the policy or programmatic challenge.[33]

- **Be open to co-creating the solution context**. Achieve a clear purpose centered on outcome-driven goals, and empower partners to adapt and co-create the collective mission and specific responses. "To keep the conversation most effective, practical, and focused on generating powerful breakthroughs, you must bring in other points-of-view, not to dominate the conversation, but to challenge it," said Seth Kahan, change and innovation expert and founder of Visionary Leadership.[34] One way to engage partners is by saying, "Here's the broad goal. What kinds of ideas or commitments do you have to meet it?"

- **Structure meetings around action**. Convey an explicit expectation that participants will produce deliverables, or commitments for their specific follow-on actions and investments.[35] Additionally, meetings could be used to convene communities to rapidly innovate on pre-determined challenges, for example as a "hack-a-thon" (see Resource Box 1: Leveraging Hack-a-Thons).

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[33] Backcasting, as opposed to forecasting, "can be thought of as a jigsaw puzzle, in which we have a shared picture of where we want to go, and we put the pieces together to get there." For further see The Natural Step, "Backcasting," accessed November 1, 2017, http://www.naturalstep.ca/backcasting.

[34] S. Kahan, "The Power to Convene and Set Context," *Fast Company*, October 2008, https://www.fastcompany.com/1061235/power-convene-and-set-context.

[35] J. Calmes, "Obama Counts on Power of Convening People for Change," *New York Times*, January 2014, http://www.nytimes.com/2014/01/11/us/politics/obama-counts-on-power-of-convening-people-for-change.html.

Resource Box 1: Leveraging Hack-a-Thons

Federal agencies gather and store a significant amount of data, which can be under-accessed and under-exploited. Opening up data for external utilization allows for potential augmentation of Federal in-house expertise and analysis of raw data for novel insights. Open data engagement events (e.g., hack-a-thons) can be a primary avenue for achieving this aim.

Hack-a-thons are competitions where "hackers," or individuals skilled in building and modifying software and hardware, work on a designated challenge with the aim of creating a demo or a solution to the challenge within a specified period of time (e.g., a single day or a weekend). Often prizes, awards, or recognition are provided. Hack-a-thons can be open to the public or by invitation-only. Similarly, they can occur virtually or at a physical location, depending on the number of involved competitors. Examples of recent hack-a-thons include:

- **General Service Administration's Digital Innovation Hack-a-Thon**: participants worked to develop new dashboards for contracting officers, analyze traveler behavior and costs, and identify tenant satisfaction drivers and potential relations to costs and energy consumption. More at: https://open.gsa.gov/events/digital-innovation-hackathon.

- **Defense Department's Advanced Functional Fabrics in Challenging Environments Hack-a-thon**: participants worked to build product prototypes for the utilization of fabrics within systems for emergency responses in challenging environments. More at: https://www.defense.gov/News/News-Releases/News-Release-View/Article/1284817/defense-department-hosts-hackathon-for-advanced-functional-fabrics-in-challengi.

- **HHS Opioid Code-a-Thon**: participants submitted codes to use data and technology to support opioid treatment, usage and misuse prevention. More at: https://www.challenge.gov/challenge/hhs-opioid-code-a-thon.

Hack-a-thons and similar events can provide Federal agencies with solutions to ongoing problems, ideas for uses of agency data, and connections to technical experts and external stakeholders. Though these events can be limited in scope and duration, the continued interactions can foster ideas and bolster agency capabilities.

- **Build trust.** The Trust Equation is a simple but powerful framework for understanding the behavioral elements that build trust and enable collaboration. The three factors in the numerator of the trust equation are credibility (the words that we speak); reliability (our actions); and intimacy (the safety or security from trusting someone). These factors are divided by self-orientation which is whether a person's focus is primarily themselves or another person. These four variables are used to measure trustworthiness. (See Figure 11)
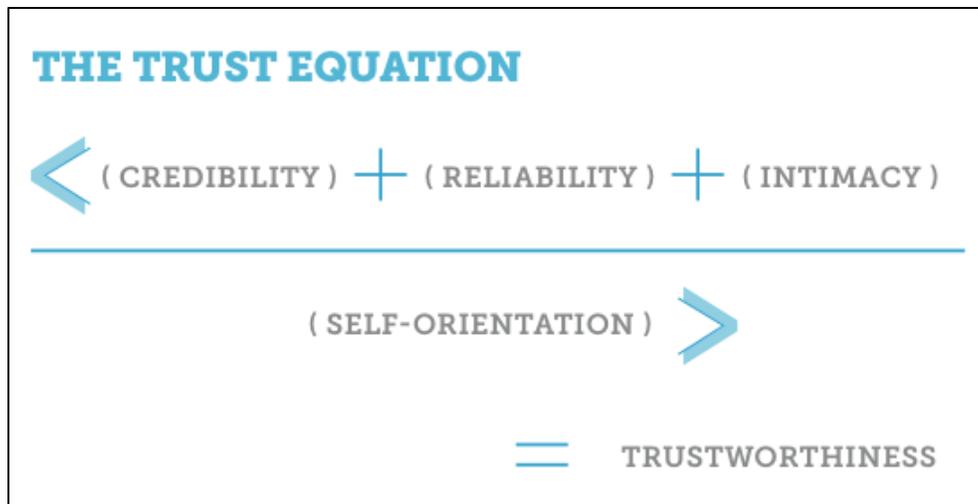
Source: Trusted Advisor Associates LLC, "Understanding the Trust Equation," accessed November 1, 2017, http://trustedadvisor.com/why-trust-matters/understanding-trust/understanding-the-trust-equation.

Figure 5. Trust Equation

- **Keep the focus on realizing the shared outcome.** The BRAIN Initiative, for instance, has been a success because "science was put first at every turn," reports Miyoung Chun of The Kavli Foundation.[36]

- **Include the public**. Create a platform where citizens can also contribute new ideas. Input can be solicited through digital engagement tools like webforms. One example is the General Services Administration's call for input to the Open Government Plan.[37]

d. Policy and statutory frameworks

The Federal agency's policy regime can place limitations on project selection, funding, management, and other factors that need to be considered when scoping the issues and potential partners. Officials should establish and clearly communicate the boundaries of legislative and statutory regulations to partners, as these set the parameters for collaborative engagement that may not be immediately clear to non-Federal stakeholders. Agencies may involve staff from general counsel offices and contracting experts to better understand and help communicate these frameworks.

2. Deployment

The deployment of a partnership requires effective, clear, and consistent communication among partners as well as resources to fund the people and partnership activities.

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[36] M. Chun, The Kavli Foundation, phone interview, August 11, 2016.

[37] For further see GSA, "Open Government Plan 2016-2018," accessed December 5, 2017, https://gsa.github.io/opengovplan.

a. Clear lines of communication

Communication is critical for managing expectations throughout the partnership. Managing expectations can help provide partners with a clear understanding of their individual responsibilities and of the overall desired project outcomes. Each partner can work to clearly define their roles and responsibilities early in the partnership, including the risks and benefits from each partners' perspective.[38] Agencies may encourage appropriate stakeholder involvement to provide input into the process, for example through task force committees or intermediaries who can serve as bridges and offer guidance.[39] (Refer to Resource Box 2: Examples of Communication Mechanisms.)

Resource Box 2: Examples of Communication Mechanisms

The following mechanisms could be considered to communicate with partners and other stakeholders:

- Issue a statement or press release—ideally from the senior leadership in a speech or op-ed. It is also possible to publish a blog post that has examples for how different types of organizations can get involved, and that has an online form or e-mail address.
- Organize a workshop devoted to brainstorming ideas for specific commitments, ideally with one or more senior administration officials present to convey top level support.
- Hold one-on-one conversations.
- Leverage associations or professional societies that can inform and mobilize their members—particularly if they have entrepreneurial and highly motivated staff.
- Amplify a sense of momentum by identifying a few organizations that are willing to act. Create a deadline and sense of urgency by scheduling an event.
- Show people and organizations past examples of commitments that are relevant.

Source: K. Garg, former senior advisor at the Office of Science and Technology Policy, email communication, December 20, 2016.

The announcement of a new partnership can help demonstrate the public and private sector support for a certain project or initiative, which can be critical to its success.[40] Agencies could work with private sector partners to develop a clear, concise, and cohesive concept of the project that can be

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[38] National Council for Public-Private Partnerships, "7 Keys to Success," http://www.ncppp.org/ppp-basics/7-keys/.

[39] Ibid.

[40] World Bank Group, "A Checklist for Public-Private Partnership Projects," August 22, 2014, http://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/global_checklist_ppp_g20_investmentinfrastructure_en_2014.pdf.

communicated to external stakeholders.[41] It is critical to think early on about the partnership's narrative and how that can be used to gain broad support and buy-in from other stakeholders.

b. Public champion

Agencies may also wish to identify and involve a public champion that can announce the partnership and maintain visibility of the project as the partnership progresses. This champion can be a high-level public figure and can serve as a spokesperson and advocate for the project.[42] These champions can play a crucial role in minimizing public misperceptions about the partnership and its goals.[43] Champions can generate further involvement as they help demonstrate top-level support and can enhance the partnership's visibility across key communities or the public. Agencies may also consider how the use of a public champion could increase their risks if the champion is involved in negative situations or those that can lead to negative press.

c. Funding and resources

A variety of mechanisms exist for securing funding to support partnerships. For formalized partnerships, Federal agencies can utilize existing authorities and funding to enter into contractual agreements with partners. Alternatively, less formalized routes for securing funding and other resources could include in-kind support. Further, the ability for Federal agencies to receive and give funding for partnerships may depend on the legislative authorities.

In the absence of clear contracting authorities, 501(c)(3) foundations have emerged to support missions of specific Federal agencies while remaining independent of the Federal entities. These foundations can be congressionally mandated or initiated within an agency. Through foundations, Federal agencies may be able to more freely accept gifts from non-Federal organizations to support their goals or agency missions (see Resource Box 3: Examples of Federal Foundations.)

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[41] M.B. Corrigan, et al., "Ten Principles for Successful Public/Private Partnerships," 2005, http://uli.org/wp-content/uploads/2005/01/TP_Partnerships.pdf.

[42] U.S. Agency for International Aid, U.S. Global Development Lab, "Innovation," https://www.usaid.gov/GlobalDevLab/about/innovation.

[43] National Council for Public-Private Partnerships, "7 Keys to Success," http://www.ncppp.org/ppp-basics/7-keys/.

Resource Box 3: Examples of Federal Foundations

The following are examples of foundations established to work with Federal agencies:

- U.S. Department of Agriculture (USDA) Agricultural Technology Innovation Partnership (ATIP) Foundation: The investor based consortium is composed of agribusinesses, universities, economic development entities, and venture funds. The foundation seeks to commercialize USDA technology discoveries to support the agriculture industry.

- USDA Foundation for Food and Agricultural Research: The foundation accepts private donations to fund research activities that focus on problems of national and international significance.

- National Association of Veterans' Research and Education Foundations (NAVREF): The nonprofit promotes activities of Veterans Affairs nonprofits.

- Department of Interior National Park Foundation (NPF): The non-profit partner raises private support for conservation efforts.

- National Institutes of Health (NIH) Foundation for the NIH (FNIH): The Foundation supports the NIH in its mission and to advance collaboration with biomedical researchers from universities, industry, and not-for-profit organizations. (See Appendix A for a case study on the FNIH.)

- Centers for Disease Control and Prevention (CDC) National Foundation for the Centers for Disease Control and Prevention Inc.: The Foundation connects the CDC with private-sector organizations and individuals to build public health programs.

- Food and Drug Administration (FDA) Reagan-Udall Foundation: The foundation is an independent not-for-profit advancing science that is critical to helping the U.S. Food and Drug Administration accomplish its mission.

- DOD Henry M. Jackson Foundation for Advancement of Military Medicine: The foundation supports research and education at the Uniformed Services University of the Health Sciences and throughout the military medical community. It also serves as a link between military researchers and private medical sector.

Source: Federal Laboratory Consortium for Technology Transfer, "T2 Playbook," accessed November 2, 2017, https://www.federallabs.org/T2-Playbook#t2Plbk15.

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3. Oversight

a. Monitoring and oversight

Federal agencies may develop mechanisms and processes to assess the continued effectiveness of decisions and implementation procedures.[44] Additionally, public agencies need to have a defined mechanism to ensure the contract achieves the established performance standards or objectives outlined in the agreement.[45] Monitoring technical performance of partners may be necessary for

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[44] M.B. Corrigan, et al., "Ten Principles for Successful Public/Private Partnerships," 2005, http://uli.org/wp-content/uploads/2005/01/TP_Partnerships.pdf.

[45] U.S. Department of Transportation, Federal Highway Administration "Monitoring and Oversight for Public-Private Partnerships (P3s)," https://www.fhwa.dot.gov/ipd/pdfs/p3/factsheet_07_monitoringandoversight.pdf.

certain projects. As a result, this step may require that a strong set of skills and resources be developed and maintained within the agency.

b. Performance measurement

Performance measurement allows each partner to identify and communicate the successes of the joint initiative. Identifying and evaluating progress against performance standards and metrics can ensure accountability and inform decision-making.[46] Federal agencies could develop a set of shared metrics with their partners to ensure progress is understood and communicated in a uniform manner.

F.   Lessons Learned

The following section provides lessons learned that can be applied across various types of partnerships.

1.   Use High Level Power to Convene

The power of an office or individual leader can function as a driver in facilitating and laying the groundwork for successful, collaborative engagements. The challenge is to manage expectations with the partners, as the partnership needs to continue to make measurable progress even when high-level presence may not regularly be there.[47] Through either direct means (e.g., funding or in-kind support) or informal, indirect means (e.g., stated support, active participation), leaders can continue to support and keep a community or partnership a priority. Additionally, leaders may be brought in to initiate conversation and set the tone around the particular problem facing an agency.

2.   Understand Context Before Engagement

Understanding partners' backgrounds allows each individual participant to respond fully to the commitment. Both formal and informal partnerships can be tailored to allow organizations to respond to the commitment, while also respecting the uniqueness of each actor's goals and agendas. For example, resource constraints can create tension and act as a barrier for partners when building trusts and relationships. Actors need to clearly articulate incentives for different partners; by involving them in the creation of the common agenda, participants recognize its value.

Typical stakeholders in a partnership have different goals and agendas. For example, non-profits may compete with one another for a finite number of resources; foundations may not fund activities that support collaborative approaches; private sector contributors may evaluate participation based

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[46]   M.B. Corrigan, et al., "Ten Principles for Successful Public/Private Partnerships," 2005, http://uli.org/wp-content/uploads/2005/01/TP_Partnerships.pdf.

[47]   D. Runde, "The Future of Public-Private Partnerships: Strengthening a Powerful Instrument for Global Development," Center for Strategic & International Studies, 2013, https://www.csis.org/analysis/future-public-private-partnerships-strengthening-powerful-instrument-global-development.

on the bottom line and what a collaboration can bring to shareholders and its customers; and academic researchers may feel pressured to focus on research questions that are publishable. In these contexts, it can be difficult to ask collaborative partners to devote time to working together. Clarifying what each contributing partner gains from the collaboration is key to bringing people to the table and gaining buy-in.

3.   Choose the Right Issue

Substantive challenges should be prioritized, otherwise a dilution effect from over-frequent or inappropriate use of the partnership approach could reduce the interest of partners from entering in future partnership opportunities. Partnerships, especially informal partnerships, should have a genuine collaborative opportunity.[48] Choosing the right issue is important for generating commitments and follow-through from executive leaders in non-Federal organizations. Finally, the "right" issue may be one in which the Federal entity and partners feel capable they can beneficially work and make progress together. For example, an issue that relies upon legislative or judicial changes for sufficient advancement may not be appropriate for certain stakeholders.

4.   Communicate Openly, Commit Firmly

Clear forms of communication that effectively manage expectations are essential, especially for larger collaborations which may unfold over months and years. For the US Ignite partnership, co-founder Joe Kochan reflected that at the beginning, the collaboration struggled with a "slightly unrealistic" point of view regarding the timeline for working with Federal partners.[49] The organization realized that each piece of collaboration involving external organizations (e.g., partnership announcements with agencies, White House events, fact sheets) could be time consuming, but are of "chicken and egg" nature to the engagement: "Companies really value being a part of [high visibility collaborations], so it's important," Kochan says, but getting Federal partners on board requires a certain threshold of company commitments. "You cannot have one without the other," he explained.[50]

Trying to advance public and private efforts in parallel must be aligned with a realistic understanding of the mechanics and timeline for Federal processes. It is also important for strong relationship building to occur early on, as partnerships can be tested. For instance, budget cycle timelines do not always align across organizations, and approval processes may pose additional hurdles. A genuine embrace of a co-creative approach to partnering and a firm commitment to the goals and objectives outlined at the outset of the effort are important foundations when challenges arise.

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[48]   A. Chopra, *Innovative State,* Grove/Atlantic, Inc., 2016, p. 68.

[49]   J. Kochan, co-founder of US Ignite, phone interview, August 16, 2016.

[50]   Ibid.

5. Develop a Process and Share Metrics

Establishing a standard, repeatable, and flexible process can enhance the success of a partnership and facilitate its goals. The process can be used to define, diagnose, and establish the objectives that the partnership will accomplish and how it will happen, while simultaneously bringing the key stakeholders together to ensure they are buying in to what the partnership aims to create. The process works to establish the goals of the partnership and engage and activate the network of partners an organization plans to involve.

When expectations and guidelines are not well-established at the outset of a partnership, partners can have unrealistic expectations of each other during the course of their work together. It is important to the success of the partnership that partners are brought together often to communicate and ensure that expectations are managed.

Establishing an agreed-upon series of measures and sharing them across partners enables all participants to track progress in the same way. This improves the collective understanding of whether the partnership is achieving its goals and allows for continuous improvement.

6. Create Accountability Mechanisms

Demonstrating the value of collaboration to multi-sector partners can be a significant challenge to sustainability. But over time, the challenge evolves toward maintaining and ensuring accountability of individual partners. At a minimum, accountability involves consistent follow-ups to ensure that organizations are making progress towards their commitments. Mechanisms for accountability include:

- Quantify a collaboration's impact and share credit equally with everyone involved;

- Require partners to commit to communicating openly in public so a record is created;

- Maintain touch points and relationships—as trust grows within the partnerships, commitment increases if support is provided in return;

- Define metrics for success at the beginning; defining early on what the group anticipates success for the partnership to look like, and how each will exit the partnership, is important to set expectations for roles, communications, or level of effort;

- Appoint co-chairs, or coordinators, for the group who share the management role, scheduling, delegation of tasks and accountability of members, and can ensure long-term sustainability;

- Create a web-page for the initiative so that updates can be provided on the progress various stakeholders have made; and

- Devote time to focusing on progress from past commitments, especially when holding multiple events on the same initiative.

G. Future Considerations

"As leadership shifts away from hierarchical decisions-at-the-top-slowly-cascading-downward, to social networks and self-organizing, knowing how to use convening power becomes critical," writes Harvard University professor of business, Rosabeth Moss Kanter.[51] Beyond assessing which other issue areas would benefit from the spotlight of a partnership, Federal employees could strategically reflect on the potential for change as they structure partnerships. For instance:

- How could we encourage the development of more collaborative, synergistic relationships among stakeholders that respond to a Federal call for partnership?

- How can we better use technology through backbone organizations to build more collaborative partnerships, assess shared goals and metrics, and better understand indicators of success or failure?

- What can be done to encourage respondents to achieve scale and scope around carefully tailored goals and metrics?

- How can we crowd-in private investment into multi-stakeholder initiatives launched by the Federal Government?

- How can we develop multi-stakeholder initiatives that are sustainable once incubated or encouraged by the Federal Government?[52]

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[51] R.M. Kanter, "How to Use Convening Power," *Harvard Business Review*, September 2011.

[52] J. Heimans and H. Timms, "Understanding New Power," *Harvard Business Review*, December 2014.

Appendix A.
Case Studies Related to Partnership Development in the Federal Government

A series of four case studies were developed to illustrate the role, development, and impact of partnerships. Case studies include the BRAIN Initiative, the Foundation for the National Institutes of Health (FNIH), US Ignite, and the Million Hearts initiative.

Case Study 1: BRAIN Initiative[53]

Background

The Brain Research through Advancing Innovative Neurotechnologies Initiative (BRAIN Initiative) is a collaboration of Federal partners, non-profits, and the private sector that drives interdisciplinary collaborations and delivers new research tools to close existing knowledge gaps about the brain and nervous system. The BRAIN Initiative exemplifies a complex, multi-pronged issue best addressed by a whole-of-government approach with widespread agency coordination in conjunction with significant private investment. The initiative crosses traditional neuroscience boundaries in interdisciplinary collaborations with geneticists, chemists, engineers, physicists, and information scientists among others; and deploys cutting edge computer science, physics, biology, and chemistry to develop transformative tools.

Since its launch in April 2013, five Federal agencies have invested in the effort, with the Intelligence Advanced Research Projects Activity (IARPA) joining the Defense Advanced Research Projects Agency (DARPA), the NIH, the National Science Foundation (NSF), and the FDA. Each of these research organizations provide funding to researchers and investigators to pursue scientific projects that will advance the goals of the BRAIN Initiative.[54]

Development

At a September 2011 meeting between The Kavli Foundation, Allen Institute, and Gatsby Foundation on the interface of neuroscience and nanoscience, the seed idea for what would become

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[53] Information derived from T. Kalil, formerly at OSTP, phone interview, August 1, 2016; M. Chun and C. Martin, The Kavli Foundation, phone interview, August 11, 2016.

[54] BRAIN Initiative, "Join the Effort," accessed December 5, 2017, http://www.braininitiative.org/opportunities.

the BRAIN Initiative emerged.[55] In December 2011, a white paper proposed the creation of an activity map of the brain to the NIH, DARPA, and the White House Office of Science and Technology Policy (OSTP); and was later published in the journal *Neuron*. Throughout 2012 and into 2013, The Kavli Foundation and OSTP hosted a series of meetings to refine the proposal for the brain activity map, which played a catalytic role in the BRAIN Initiative.[56]

From there, a workshop was held to invite ideas from top scientists and scope out an initiative that would focus on brain research. The Kavli Foundation convened top experts from a broad spectrum of physical sciences to identify the key obstacles preventing scientific advancement in areas of brain research. At the convening, a shared understanding emerged about key obstacles stalling progress. From reflecting on how the field had advanced in the past, it was clear that new tools and new methods had been essential for answering frontier challenges.

After over 18 months of aligning the pieces necessary to realize the collaboration, congressional approval was received for increased funding in December 2015.[57] During the lengthy process, The Kavli Foundation acted as the "constant convener and the glue" for the scientific community, says Chun. Within government, OSTP coordinated prospective Federal agencies. Funding agencies worked together closely in the development and launch of the initiative, with NIH playing a key leadership role. The White House emphasized realism with clear communication, that through the collaborative process, the articulation of the end goal could shift. Concerted effort went into conveying to outside partners how Federal processes worked. Clear lines were drawn for potential conflicts of interest, for example, between Federal funding agencies and scientists who would potentially benefit from funding decisions.

Impacts

As a result of the BRAIN Initiative, hundreds of papers have been published, and new methods and tools developed.[58] BRAIN Initiative research breakthroughs include:

- In July 2016, researchers announced the discovery of nearly 100 previously unknown areas of the brain, and published a new map of the brain giving scientists an unprecedented glimpse into the machinery of the human mind.[59]

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[55] The Kavli Foundation, "About the Brain Activity Map Project," http://www.kavlifoundation.org/about-brain-activity-map-project.

[56] The Kavli Foundation, "About the BRAIN Initiative," http://www.kavlifoundation.org/about-brain-initiative.

[57] D. Nather, "It's Official: The NIH Budget is Getting an Extra $2 Billion," STAT, December 2015, https://www.statnews.com/2015/12/18/nih-increase-congress-vote.

[58] BRAIN Initiative, "Curated Resources and Tools," accessed December 5, 2017, http://www.braininitiative.org/resources.

[59] C. Zimmer, "Updated Brain Map Identifies Nearly 100 New Regions," *New York Times*, July 2016, http://www.nytimes.com/2016/07/21/science/human-connectome-brain-map.html.

- **"BRAIN Initiative researchers at the University of California, San Francisco developed an assembly line system to rapidly analyze the genes of thousands of newborn brain cells. Using this approach they discovered clues as to how the Zika virus may infect neurons and how the human brain may have grown through evolution."[60]**

- "Current brain imaging machines require people to lie still for long periods of time while being scanned, an uncomfortable state. BRAIN Initiative researchers at the University of West Virginia and University of Virginia addressed this problem by developing a plan for making a wearable positron emission tomography scanner. This would allow doctors to watch the activity of a person's brain during a more natural state, such as walking through a park."[61]

In September 2016, the International BRAIN Initiative was announced at the United Nations General Assembly meeting in New York bringing together 400 scientists, government and finding agency representatives, and private companies and foundations to begin a dialogue on international collaboration across large-scale brain projects.

Key Learning Insights

1. Right problem, right time

At the outset, problem definition is foundational for success. By selecting a problem that will resonate with a range of stakeholders, it inspires a wide range of engagement from individuals and organizations.

2. Strong leadership, combined with deep, genuine high-level engagement by members

Deep, sustained engagement from the White House was essential in realizing the collaboration. "Tom Kalil really brought the right leaders at the right time," Chun says. The Kavli Foundation firmly emphasizes its own role as a neutral, independent mediator between government and the scientific community, noting that many collaborators were proactive in pushing the initiative forward: "Scientists stepped up. Funders stepped up. White House leadership stepped up. […] We like to think that we stepped up, in our own way—but the fact is that everyone stepped up." As previously stated, private-sector organizations including foundations, universities, and research institutions have already committed over $240 million to the initiative.

3. Inter-agency cooperation can be essential for fully activated engagement

The BRAIN Initiative began with the participation of three agencies (NIH, NSF, and DARPA) and has since worked with several others, including IARPA and FDA. NIH brought its expertise on fundamental research and elements related to human health, whereas DARPA focused on its strength—high-risk, high-return research—to immediately respond to aspects of the BRAIN Initiative that might help veterans. The NSF, on the other hand, focuses its BRAIN Initiative efforts

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[60] National Institutes of Health, "NIH nearly doubles investment in BRAIN Initiative research," October 13, 2016, https://www.nih.gov/news-events/news-releases/nih-nearly-doubles-investment-brain-initiative-research.

[61] Ibid.

on its own core competencies: integrative and interdisciplinary research; new theories, computation models, and analytical tools that will guide research questions and synthesize experimental data; and the development of innovative technologies and data infrastructure required to handle the large scale datasets resulting from this research. By concentrating on agency-specific strengths, and facilitating communication amongst agencies, the BRAIN Initiative efficiently promotes full participation and expansion.

4. Sharing credit augments the power of convening

The White House consciously attributed progress to partners in the collective group effort, making sure to involve scientists in announcement events. The Kavli Foundation notes that the continued credit-sharing after initial successes was "tremendously reassuring," and continued to build trust within the collaborative partnership.[62]

Further Resources

- The 2014 call to action; White House, "A White House Call To Action to Advance the BRAIN Initiative," https://obamawhitehouse.archives.gov/blog/2014/02/24/white-house-call-action-advance-brain-initiative.

- Interview with the BRAIN project pioneer, Dr. Miyoung Chun, https://www.technologyreview.com/s/513476/interview-with-brain-project-pioneer-miyoung-chun/.

- May 2016 report to the Committees on the activities of the Interagency Working Group on Neuroscience (IWGN); OSTP, Letter to the House and Senate Appropriations Committees," May 2, 2016, https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/iwgn_congressional_report_final.pdf.

- BRAIN Initiative milestone map; BRAIN Initiative, "Milestones," http://www.braininitiative.org/milestones.

Case Study 2: Foundation for the National Institutes of Health (FNIH)[63]

Background

The Foundation for the National Institutes of Health (FNIH) is a non-governmental, non-profit 501(c)3 organization that procures funding for and manages public-private biomedical research collaborations that support the mission of NIH. As established by the U.S. Congress, the Foundation operates as a separate entity with its own independent Board of Directors and

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[62] Ibid.

[63] Information derived from S. James, FNIH Science Director, and J. Wolf-Rodda, FNIH Director of Development, email communication and phone interview, August 12, 2016.

management. The Foundation's independent status enables it to act as a trusted third party, implementer, and an effective broker for partnerships that support both government and private sector interests, and that include NIH, FDA, other government agencies, pharmaceutical and technology companies, philanthropic organizations, and other non-profits. FNIH activities include organizing and administering large-scale research partnership programs, supporting education and training of new researchers, organizing educational events and symposia, and administering funds to support a broad spectrum of health challenges. As an independent organization, FNIH is authorized to raise private funds and create P3s that benefit the NIH's mission.

Development

To tackle the human health challenges that face the world today, the FNIH applies its power to draw the right partners into an initiative. The Foundation develops collaborations with top experts from government, industry, academia, and the not-for-profit sector, and provides an environment where it can work productively toward common goals and solve common problems. Novel partnership or project concepts may be proposed through NIH or by any of FNIH's network of public or private sector partners, and are further developed and vetted by FNIH staff. While partnerships vary considerably in their goals, scope, and structure, they share the common principle of combining the collective expertise of multiple partners to achieve results that any single entity cannot achieve as effectively on its own.

The NIH Office of the Director provides a final bar of review for ideas generated by NIH. Upon receiving any new project proposal, FNIH staff consults its Board of Directors for a determination as to whether the Foundation should enter into the partnership. FNIH then works with the originator of the concept to come to a better understanding of what they would like to accomplish.

FNIH's role and capabilities include project design and management, fundraising, contracting and grant making, intellectual property management, and monitoring and evaluation of project results. In general, partnership development entails:

- **Crafting a common agenda and engaging partners who can support the mission:** Ensuring everyone is in agreement about what they are trying to accomplish. "The first step is to define the problem and build consensus around that definition," explains Stephanie James, FNIH's Science Director.

- **Determining the type of resources that are required to achieve the solution:** FNIH involves its partnership community to understand collectively what human, technical, and financial resources are required to solve the problem.

- **Building an appropriate structure that can be effective in solving the problem:** FNIH does not have a set prescription or blueprint for its partnerships. Activities and structure are designed and tailored to the specific agenda and project. A key requirement is the establishment of a mutually agreed upon governance structure.

- **Creating multiple touch points for project oversight and cultivation of relationships:** FNIH convenes its partners regularly at events, symposia, and other activities to allow partners to engage and grow their individual relationships. FNIH-managed projects are subject to ongoing project management, including regular reviews of technical progress and finances.

Impacts

The FNIH has created hundreds of cross-disciplinary partnerships that have generated or tested novel approaches to overcome challenges in biomedical research for the prevention and treatment of disease and disability, and provided significant supplementary support for NIH initiatives. The organization stands at the center of a broad portfolio of initiatives that support the mission of the NIH to advance biomedical science and improve lives. Some of the key results of FNIH efforts include:

- **Research partnerships:** Convening scientific experts from government, industry, academia, and the not-for-profit sector to collaborate on common goals.[64] Examples include:

  - Portfolio Supporting NIH Research—Supporting and raising funds for multiple projects initiated by the NIH, while also convening partners within and outside of the NIH;

  - Global Health—Coordinating and operating collaborative projects in more than 25 countries;

  - Biomarkers Consortium—Initiating and managing over 20 projects funded with more than $60 million in private dollars, designed to develop and validate biological markers to support new drug development and patient care.

- **Symposia, events, and exhibits:** The organization hosts more than 50 events each year, which are organized to create forums for innovative thinkers in biomedical sciences to share ideas and engage the public in disease and health awareness.[65]

Key Learning Insights

1. Facilitate collaboration amongst partnering organizations

The FNIH is mission-driven to create a nexus between discovery and collaboration. According to James, "discoveries that advance human health are not simply a matter of bringing together the best minds from government, industry, academia, and not-for-profits. Facilitating breakthroughs

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[64] FNIH, "Current Research Programs," http://www.fnih.org/what-we-do/current-research-programs/all.

[65] FNIH, "What We Do," http://www.fnih.org/what-we-do.

means helping partner organizations collaborate in ways that harness their full power and potential."

2. Flexible approach to formulating partnerships

Sitting outside government is central to the success of FNIH, as it provides the ability to act as a bridge between the NIH, the research community, and potential funders. Because FNIH is an external entity, it has increased flexibility for making independent decisions, so long as the decisions align with its role in supporting the mission of the NIH. According to James, the bottom line for building partnerships is flexibility: "Typically a potential partner approaches FNIH and explains what it is they're trying to get accomplished [...] Our role is to try to help them figure out how to make that happen, both structurally and financially."

3. Stewardship is critical for successful and sustained partnerships

Bringing people together to facilitate the construction of partnerships, and then serving as a steward and manager to support the continued success of the collaboration, drives much of FNIH's work. "One of the key functions FNIH plays is providing expectation management and coaching to partners from the beginning to the end of the collaboration," according to Julie Wolf-Rodda, FNIH's Director of Development.

4. Creative problem solving

One of the Foundation's main roles is to understand what NIH can and cannot do, and structure its efforts accordingly—supporting collaboration operations, ensuring funding is available, and operating within legal boundaries and frameworks. "A lot of times we end up having to talk to the Office of General Counsel about what can be done and what can't be done, and then once we have the information, we have to come back and try to think creatively about making it work," explained James.

Further Resources

- FNIH website with descriptions of various projects; FNIH, "Foundation for the National Institutes of Health," http://www.fnih.org/.

- FNIH's annual report conveys its impact through partnerships; FNIH, "2016 Annual Report," http://2016-annual-report.fnih.org/.

Case Study 3: US Ignite[66]

Background

Launched in 2012, US Ignite is a 501(c)(3) nonprofit organization that creates demonstration projects to illustrate the public benefit of new technologies like software-defined networking and

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[66] Information derived from J. Kochan, co-founder of US Ignite, phone interview, August 16, 2016.

cloud computing. US Ignite applications focused on six national priority areas: education and workforces, energy, health, public safety, transportation, and advanced manufacturing.[67] The organization creates the tools for pilot applications, and brings together interested partners: developers, entrepreneurs, innovators, academic researchers, municipal leaders, and others.

In general, the US Ignite program follows a six-step process to developing partnerships:

1. Educate people on what is possible with next-gen networks through demonstrations of potential applications.

2. Source resources and innovators to make pilot applications possible, matching funding to need.

3. Create prizes, incentives, and recognition for innovative ideas for next-generation applications.

4. Secure agreement with network operators for testbeds where new applications can be demonstrated to the public.

5. Scale up demonstration projects and connect them to more communities.

6. Tell the story and explain the importance of advanced networks as the foundation of these new applications.

US Ignite builds demonstration projects to address knowledge gaps (e.g., concepts of latency and network jitter or with newer technologies like software-defined networks). The result helps to catalyze the adoption of new technologies, which, in turn, lowers their cost and encourages further adoption.

Development

From 2010 to 2012, as part of the debate over economic stimulus, stakeholders did not agree on the economics or the theory of who was obligated to build broadband infrastructure, but consensus emerged that it urgently needed to be done. Additionally, there was agreement that almost all stakeholders, from corporations to public taxpayers, needed a better understanding of why investment in next-gen networks is critical. "US Ignite exists only because of a need for a P3" to effectively demonstrate the uses and benefits of next-gen networks, explained Kochan.

In the first several years of operation, the organization was primarily funded through corporate and philanthropic partners, using memoranda of understanding (MOUs) and formalized commitments. Primary Federal partners included NSF and OSTP, with the National Institute of Standards and Technology (NIST) under the Department of Commerce (DOC) also collaborating. Private sector partners include telecom and tech companies, such as Verizon, Juniper, and CISCO. While US

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[67] US Ignite, "What is US Ignite?," https://www.us-ignite.org/about/what-is-us-ignite/.

Ignite began with around 15 commercial partners, current partners include equipment manufacturers, network operators, research and education institutions, non-profits, and municipalities.[68] Interested parties can submit inquiries via the website to join the partnership network. As the partnership network has evolved and Federal collaboration has grown, the mission has largely remained the same.

The organization is continuing to engage the academic research community, while also working with municipalities and corporations to encourage and foster deployment of ecosystems of next-generation networking. In June 2016, US Ignite announced the creation of a national network of Smart Gigabit Communities. Each of the 15 communities involved made a significant commitment toward leveraging next-generation smart city and Internet technologies to keep pace with the world's rapidly changing technology and economy.[69]

Impacts

With 35 sponsors and partners, in its first years US Ignite has developed and deployed a multitude of applications with diverse social impact. NSF reports that projects as a whole have "demonstrated the potential societal impact of broad use of ultra-fast, software-defined networks;" for example, the NSF Early-concept Grants for Exploratory Research (EAGER) project led to improvements for emergency response communications and operations.[70] As of November 2016, there were 139 applications, services, and solutions leveraging advanced network technologies for the NSF US Ignite project: eight have been commercialized, 39 have a completed idea, and 65 are currently in development.

 In the next five years, the ecosystem created by US Ignite plans to deliver 60 next-generation applications; 200 community test beds where applications can be researched, developed, tested and deployed; and a forum for collaboration between multi-sector partners.[71]

Key Learning Insights
> 1. Balance stakeholder views

Starting with a basis of agreement between public and private stakeholders can set context for developing a strategy with broad appeal. Ultimately, the balance of public and private partners and funding sources was important for establishing a broad, multi-sectoral perspective for US Ignite.

> 2. Formalize commitments

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[68] US Ignite, "Organizations," https://www.us-ignite.org/orgs/?page=1.

[69] J. Kochan, "US Ignite Announces 15 Smart Gigabit Communities," US Ignite, June 2016, https://www.us-ignite.org/blog/2016/6/sgc/.

[70] National Science Foundation, "US Ignite—Program Solicitation," January 2015, https://www.nsf.gov/pubs/2015/nsf15508/nsf15508.htm.

[71] US Ignite, "What is US Ignite?," https://www.us-ignite.org/about/what-is-us-ignite/.

Engaging partners with context-appropriate framing helped to secure private sector buy-in. For example, when approaching private sector partners, commitments were designed around clearly defined value propositions (as opposed to a framing for public sector stakeholders). Commitments were then formalized with clear, specific, and measurable goals and deliverables that helped to sustain longer-term buy-in into the partnership.

3. Convey the timeline for working with Federal partners

The agility of private funding sources can complement Federal efforts. The NSF issued Dear Colleague letters (DCLs) in 2012 and 2013, but projects only began receiving funds through DCLs in 2015. "The timeframe could have—and almost did—span an entire administration," noted Kochan. Funding from private partners drove the effort for the first three years of the organization's existence, with more than 80% of funding initially coming from private sources. OSTP was the primary governmental liaison/inspiration in early stages, while NIST joined in later as a partner.

Further Resources

- NSF, "US Ignite: Networking Research and Application Prototypes Leading to Smart & Connected Communities," https://www.nsf.gov/pubs/2016/nsf16553/nsf16553.pdf.

Case Study 4: Million Hearts—Department of Health and Human Services

Background

Million Hearts is an initiative to improve the nation's cardiovascular health by preventing cardiovascular events. Created in 2011, the initiative is co-led by the Centers for Medicare and Medicaid Services (CMS) and CDC within the U.S. Department of Health and Human Services (HHS).[72] The program focuses on small changes communities can make, such as reducing or eliminating smoking, sodium intake, and trans-unsaturated fat intake, to create long-term reductions in heart attacks and strokes, while also emphasizing greater coordination between public health organizations and clinical systems.

Development

Agency leaders within HHS, CMS, and CDC believed the goal of decreasing cardiovascular events could be achieved through collaborative actions. Million Hearts rallied communities, healthcare professionals, nonprofit organizations, Federal agencies, and private sector organizations around this common goal. The Million Hearts initiative includes partners who made commitments to the initiative from across the public and private health sectors. Federal partners include the U.S. Department of Veterans Affairs and the U.S. Office of Personnel Management. State and local

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[72] CMS, "Million Hearts," https://innovation.cms.gov/initiatives/Million-Hearts/.

partners include: California Department of Public Health, New York City Department of Health and Hygiene, Virginia Department of Health. Private sector supporters include the American Medical Association, Aetna, and Walgreens.[73]

Impacts

One of the largest accomplishments for Million Hearts is the growth in the number of its partners which totals more than 120 organizations. Many innovations have resulted from Million Hearts and its partner organizations; examples include:[74]

- Million Hearts established a two-year cooperative agreement with the National Association of Community Health Centers (NACHC) to pilot the Million Hearts quality improvement strategies and tools to improve detection and control of high blood pressure in community health centers that serve populations disproportionately burdened with hypertension. NACHC recruited 11 federally qualified health centers to participate in this project.[75]

- Since 2012, the Million Hearts Hypertension Control Challenge is a competition open to public and private clinicians, medical practices, and health systems to recognize "Champions" who are exceptional healthcare providers who successfully achieved blood pressure control in their patients. Challenge champions represent a range of small and large, urban and rural, and private, Federal, and tribal health practices and systems serving more than 13 million adults.[76,77]

Key Learning Insights[78]

1. Collaboratively define metrics

Agreeing up front on how to define success and whether all or some of the Million Hearts should be tracked makes the entire data collection and analysis more efficient and reduces burden on practices. This is true not only for external groups requesting information, but also across Electronic Health Records systems.

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[73] For a more list of participating partners see Million Hearts, "Million Hearts 2022 Partners," https://millionhearts.hhs.gov/partners-progress/partners.html.

[74] Read more about success stories at Million Hearts, "Innovations," https://millionhearts.hhs.gov/partners-progress/innovations.html.

[75] Million Hearts, "National Associate of Community Health Centers Partnership Shows Quick Hypertension Control Returns," https://millionhearts.hhs.gov/files/Champions-SS-NACHC.pdf.

[76] Million Hearts, "Hypertension Control Challenge," https://millionhearts.hhs.gov/partners-progress/champions/challenge.html.

[77] A list of all Champions is available at Million Hearts, "About the Hypertension Control Champions," https://millionhearts.hhs.gov/partners-progress/champions/list.html.

[78] Adapted from Million Hearts, "State Engagement Guide," 2013, http://www.astho.org/Programs/Prevention/Chronic-Disease/Million-Hearts/State-Engagement-Guide.

2. Leverage a diversity of stakeholders

Bring together stakeholders from across sectors, including inside and outside of public health. Leaders can be engaged at the "grasstops," such as elected officials. Efforts are benefited when an effort is made to reach out to partners early, and commit to cultivating long-term partnerships that continue beyond individual projects or initiatives. Additionally, developing key contacts at partner organizations makes it easier to reach out.

3. Build on existing initiatives

Particularly in times of resource scarcity, building on the work of both public health and healthcare partners is key to maximizing impact. Initiatives that are already funded can be leveraged and incorporated into a stated set of goals. Efforts should not be duplicated, but can be leveraged.

4. Focus on shared goals

Public health and healthcare partners have shared interests and goals. Time should be taken to identify and develop common goals up front. Additionally, Million Hearts reviews and publishes case studies from local partners and healthcare providers allowing healthcare providers to learn from one another.

Further Resources

- FORA.tv, "Interview with Janet Wright Executive Director of Million Hearts with The Atlantic," http://library.fora.tv/2014/11/12/Interview_Janet_Wright_Exec_Director_Million_Hearts.

- Lessons Learned from State Case Studies; Million Hearts, "State Engagement Guide," 2013, http://www.astho.org/Programs/Prevention/Chronic-Disease/Million-Hearts/State-Engagement-Guide.

- Maryland Department of Health and Mental Hygiene, "Maryland Million Hearts Partner Profiles," http://phpa.dhmh.maryland.gov/ccdpc/systems/Documents/Million Hearts Partner Profiles.pdf.

Appendix B.
Additional Resources Related to Partnership Development in the Federal Government

This appendix provides additional resources on topics—including existing communities of practice and further reading, such as related toolkits, articles, and books, and resources related to collective impact, public engagement, management and implementation, and non-government partners and funders—to support the development of partnerships in the Federal Government.

Communities of Practice

Federal agencies interested in participating in communities of practice may wish to learn more about or participate in the following groups:

- National Council of Public-Private Partnerships (NCPPP): (Federal and non-Federal) The NCPPP is a forum for discussing and generating innovative ideas in the partnership arena. Its mission is to advocate and facilitate the formation of P3s at the Federal, state, and local levels. It holds various networking events, conferences, and forums with respect to P3s. http://www.ncppp.org.

- Community Solutions: (Federal only) A community of practice that aims to harness best practices, create a lasting structure for Federal agencies to continue improving coordination across government, and strengthen partnerships with communities, the private sector, and other stakeholders. https://communitysolutions.sites.usa.gov.

- Administrative Conference of the U.S. (ACUS): (Federal only) ACUS has a committee on P3s and serves as a resource network. https://www.acus.gov.

- Business U.S.A.: (Federal only) Provides a platform for government agencies who are interested in growing America's businesses and exports to connect with people at other agencies doing similar work, to ask and answer questions, and to share resources and lessons learned. https://business.usa.gov.

- Federal Laboratory Consortium for Technology Transfer: A Federal technology transfer community of practice focused on providing resources on the Federal laboratory enterprise, including tools and information on available technologies, funding, programs, and facilities, among other topics to facilitate research and development partnerships. https://flcbusiness.federallabs.org/#/.

Further Reading

Toolkits

- Federal Laboratory Consortium for Technology Transfer, "T2 Toolkit"—Offers tools and services for stakeholders seeking information on and access to resources available at Federal laboratories, https://www.federallabs.org/T2-Toolkit.

- Department of Transportation, Federal Highway Fund, "P3 Toolkit"—Guidance for policymakers on PPPs, http://www.fhwa.dot.gov/ipd/p3/toolkit.

- United Nations Economic and Social Commission for Asia and the Pacific, "Public-Private Partnership Readiness Tool"—Diagnostic tool for government officials to engage the private sector, http://www.unescap.org/sites/default/files/ESCAP%20PPP%20Readiness%20Tool.pdf.

- World Bank, "Practical Tools for PPPs"—How-to guides, legal frameworks, example agreements, and toolkits by sectors, https://ppp.worldbank.org/public-private-partnership/overview/practical-tools.

- Forum for Youth Investment, "P3 Proposal Development Toolkit"—Key resources, P3 proposal development, oriented at youth employment, http://forumfyi.org/P3resources.

- Collective Impact Forum—"Resources" webinars, presentations, and cases for implementing collaborative approaches using collective impact, https://collectiveimpactforum.org/resources.

Books and Articles

- S. Borgman, "The Power of Convening for Social Impact," Stanford Social Innovation Review, March 9, 2016—Provides a communication strategy for bringing people together to encourage the exchange of ideas, https://ssir.org/articles/entry/the_power_of_convening_for_social_impact.

- M. Leighninger, "The Next Form of Democracy: How Expert Rule is Giving Way to Shared Governance—and Why Politics Will Never Be the Same," Vanderbilt University Press, December 11, 2006.

- S. Nambisan, "Transforming Government Through Collaborative Innovation," IBM Center for The Business of Government, 2008, http://www.businessofgovernment.org/report/transforming-government-through-collaborative-innovation.

- C. Neal, P. Neal, and C. World, "The Art of Convening," February 7, 2011—Provides an overview of a set of principles and practices for making convening meetings productive, meaningful, and transformative.

- N. Rimland Flower, "Gather: The Art and Science of Effective Convening," Monitor Institute, June 2013—Provides a guidebook for designing convenings, including deciding whether to convene, clarifying a purpose, and critical issues to be considered and customized for the situation, http://www.monitorinstitute.com/downloads/what-we-think/gather/GATHER_The_Art_and_Science_of_Effective_Convening.pdf.

    – Video on Gather: The Art and Science of Effective Convening, https://www.youtube.com/watch?v=47JLbrRoIvk.

    – Policy Consensus Initiative, "The Role of Convener," The Practical Guide to Collaborative Governance, Kitchen Table Democracy, 2007—Provides best practices for a convening facilitator, https://web.archive.org/web/20150319030543/http:/www.policyconsensus.org/tools/practicalguide/docs/role_convener.pdf.

    – Policy Consensus Initiative, "Understanding the Spectrum of Collaborative Governance Practices," The Practical Guide to Collaborative Governance, Kitchen Table Democracy, 2007—Provides an overview of the principles for collaborative governance, misconceptions about consensus processes, and the stages of a collaborative process, http://www.kitchentable.org/sites/ktd/files/documents/A-Practical-Guide-Excerpt.pdf.

    – D. Sawyer and D. Ehrlichman, "The Tactics of Trust," Stanford Social Innovation Review, 2016, https://ssir.org/articles/entry/the_tactics_of_trust.

Resources Related to Collective Impact

- D. Epps, "Achieving Collective Impact with Results-Based Accountability," Clear Impact, 2016—Provides a collection of tools designed to help launch and sustain collective impact initiatives, http://info.clearimpact.com/hubfs/documents/Achieving-Collective-Impact-Clear-Impact.pdf?t=1494339408420.

- F. Hanleybrown, S. Jesudason, and A. Kanyagia, "Is Collective Impact the Right approach for you?," FGS—Provides a webinar explaining the foundations of the collective impact approach, pre-conditions for success, and how to determine if its appropriate for local context, http://www.fsg.org/tools-and-resources/is-collective-impact-right-approach-for-you.

- A. Abbate, J. Kania, and A. Stevenson, "Collaborating to create a common agenda," FSG—Provides a webinar on how to develop an initiative's vision and shared goals; conduct research and identify potential indicators for progress; establish ownership and buy-in from key stakeholders and implementers, http://www.fsg.org/tools-and-resources/collaborating-create-common-agenda.

- J. Kania, C. McCarver, and E. White, "Setting the Scene for Collective Impact," FSG—Provides a webinar on how to initially set-up an initiative including identifying champions, forming cross-sector groups, using data to define the problem, and including community members, http://www.fsg.org/tools-and-resources/setting-scene-collective-impact.

Resources for Public Engagement

- Federal Public Participation Working Group, "U.S. Public Participation Playbook"—Provides best practices and performance metrics to government managers to effectively build better services through public participation, https://participation.usa.gov.

- P. Holman, et al., "The Change Handbook: The Definitive Resource on Today's Best Methods for Engaging Whole Systems," Berrett-Koehler Publishers, January 4, 2007—Provides over over 60 tools for facilitating group interactions including appreciative inquiry, community summits, dynamic planning, open space, and scenario planning.

- M. Leighninger, "Using Online Tools to Engage—and be Engaged by—the Public," IBM Center for the Business of Government, 2011—Provides ten different tactics public managers may find useful for engaging the public online, highlighting more than 40 different technologies in use today to support those kinds of engagements, http://www.businessofgovernment.org/report/using-online-tools-engage-public.

- C. J. Lukensmeyer, J. Goldman, and D. Stern, "Assessing Public Participation in an Open Government Era: A Review of Federal Agency Plans," IBM Center for the Business of Government, 2011—Research into what a more open and participatory government looks like, http://www.businessofgovernment.org/sites/default/files/Assessing Public Participation in an Open Government Era.pdf.

- National Policy Consensus Center, "Integrative Collaborative Activities: Public Deliberation with Stakeholder Processes," 2007—Provides an overview on collaborative governance activities, such as engaging the public in discussion and implementing ideas through a representative group of stakeholders, that leaders can use to create better solutions to public problems, http://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1002&context=ncpp_pub.

Resources for Managers and Implementing Staff

- L. Bingham and R. O'Leary, "A Manager's Guide to Resolving Conflicts in Collaborative Networks," Kitchen Table Democracy, 2007—A 50 page report that addresses a critical set of skills— negotiation—needed by all managers involved in collaborative networks,

http://www.kitchentable.org/sites/ktd/files/documents/BinghamOLearyManagersGuidet oResolvingConflict.pdf.

- Center for Collaborative Policy, "Guide to Taking Notes and Preparing Meeting Summaries," California State University Sacramento—An 11 page guide that details best practices for documenting collaborative dialogue. It covers "how to listen, how to distill comments, and how to reframe comments with vocabulary that honors a concern yet takes off any potentially aggressive or offensive edge." http://www.policyconsensus.org/uncg/docs/notetaking.pdf.

Resources for Non-Government Partners and Funders

- Policy Consensus Initiative, "Finding Better Ways to Solve Public Problems: The Emerging Role of Universities as Neutral Forums for Collaborative Policymaking," June 2005—Provides practical guidance on the emerging role of universities as forums for collaborative approaches to public policymaking, http://www.kitchentable.org/sites/ktd/files/documents/UniversityReport.pdf.

- Grantmakers for Effective Organizations and Monitor Institute, "Catalyzing Networks for Social Change: A Funder's Guide," 2011—Provides a description how convenings are integral to catalyzing networks and creating new opportunities, https://www.geofunders.org/resources/catalyzing-networks-for-social-change-a-funder-s-guide-685.

- J. Ferris and N. Williams, "Philanthropy and Government Working Together: The Role of Offices of Strategic Partnerships in Public Problem Solving," Center on Philanthropy and Public Policy, University of Southern California, 2012. Provides a discussion on why offices for public-private partnerships are created, how they function, and the benefits and costs of such arrangements, http://www.isgimpact.com/wp-content/uploads/2013/03/PhilGovtWorkingTgthr.pdf.

- M. Kramer and M. Porter, "Creating Shared Value," FSG and Harvard Business Review, 2011—Provides a webinar and motion graphic on how success for business and society is interdependent, http://www.fsg.org/publications/creating-shared-value.

- D. White, "Business Collaboration with Government: Does Reward Outweigh Risk?," Stanford Social Innovation Review, November 2016—Provides insight on why private and public sector partnership is needed to address today's challenges, https://ssir.org/articles/entry/business_collaboration_with_government_does_reward_ou tweigh_risk.

Abbreviations

ABLE	Adolescent Behavioral Learning Experience
ACF	Administration for Children and Families
ARRA	American Recovery and Reinvestment Act
CEO	Chief Evaluation Officer
CEP	Commission on Evidence-Based Policymaking
CLEAR	Clearinghouse for Labor Evaluation and Research
CLI	Children's Literacy Initiative
CNCS	Corporation for National and Community Service
DHHS	Department of Health and Human Services
DIV	Development Innovation Ventures
DOJ	Department of Justice
DOL	Department of Labor
ED	Department of Education
EIR	Education and Innovation Research
ESSA	Every Student Succeeds Act
FY	fiscal year
GAO	Government Accountability Office
GHHI	Green and Healthy Homes Initiative
HHS	Health and Human Services
HUD	Housing and Urban Development
i3	Investing in Innovation
IES	Institute of Education Sciences
IWG	Interagency Working Group
MBK	My Brother's Keeper
MRT	Moral Reconation Therapy
NCEE	National Center for Education Evaluation and Regional Assistance
NCLB	No Child Left Behind
NFP	Nurse Family Partnership
OAH	Office of Adolescent Health
OMB	Office of Management and Budget
PAF	Pregnancy Assistance Fund
PART	Program Assessment Rating Tool
PFS	Pay for Success
RCT	randomized control trial
SFA	Success for All
SIF	Social Innovation Fund
SSIR	Social Spending Innovation Research
STEM	science, technology, engineering, and mathematics
TANF	Temporary Assistance for Needy Families

TFA	Teach For America
TPP	Teen Pregnancy Prevention
USAID	U.S. Agency for International Development
WIOA	Workforce Innovation and Opportunity Act
WWC	What Works Clearinghouse

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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER

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12. DISTRIBUTION/AVAILABILITY STATEMENT

13. SUPPLEMENTARY NOTES

14. ABSTRACT

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